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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte Girard, et al.

Appeal No. _____

Serial No.: 10/777,366
Filed: February 12, 2004
Art Unit: 1733
Examiner: Geoffrey L. Knable
Applicant: Jean-Claude Girard et al.
Title: APPARATUS AND METHOD FOR INCORPORATING AN
ANNULAR ANTENNA AND ELECTRONICS INTO A TIRE
Attorney Docket: DN2003217
Confirmation No.: 5090

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Commissioner for Patents
P. O. Box 1450
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BRIEF ON APPEAL

This brief is in furtherance of Appellants' Notice of Appeal filed May 3, 2007, appealing the decision of the Examiner dated February 9, 2007, finally rejecting claims 9-13 (all pending claims). A copy of the claims appears in the Claims Appendix to this brief.

The Commissioner is hereby authorized to charge the fee of Five Hundred Dollars and 00/100 (\$500.00) to Appellants' Deposit Account No. 07-1725. Any additional charges or credits necessary to complete this communication may be applied to Deposit Account No. 07-1725.

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Table of Contents

I.	Real Party in Interest.....	3
II.	Related Appeals and Interferences.....	3
III.	Status of Claims	3
IV.	Status of Amendments	3
V.	Summary of Claimed Subject Matter	4
VI.	Grounds of Rejection to be Reviewed on Appeal.....	5
VII.	Argument	5
	A. The Rejection of Claims 9-13 under 35 U.S.C. § 112	5
	B. The Rejection of Claims 9-13 under 35 U.S.C. §102(b)	6
VIII.	Conclusion	11
IX.	CLAIMS APPENDIX.....	13
X.	EVIDENCE APPENDIX.....	16
XI.	RELATED PROCEEDINGS APPENDIX	17

I. Real Party in Interest

By virtue of an Assignment by the named inventors, the real party in interest of the present application is The Goodyear Tire & Rubber Company of Akron, Ohio. The Assignment has not been recorded in the U.S. Patent and Trademark Office.

II. Related Appeals and Interferences

There are no related appeals or interferences known to the Appellants or the Appellants' legal representative which will directly affect, or be directly affected by, or have a bearing on the decision of the Board in the present appeal.

III. Status of Claims

Claims 9-13 remain pending in the application after the final rejection mailed February 9, 2007, and are subject to this Appeal.

Claims 9-13 stand rejected under 35 U.S.C. §112 as failing to comply with the written description requirement.

Claims 9-13 stand rejected under 35 U.S.C. §102(b) as being anticipated by Fritze (US 3,662,335).

IV. Status of Amendments

A Response after Final Action was filed May 3, 2007, concurrently with the filing of the Notice of Appeal, amending claim 9 to correct the reference to "outward antenna assembly boundary" to read "inward antenna assembly boundary", whereby making the amended reference consistent with the specification of antenna assembly boundary preceding

in claim 9. The amendment has not yet been entered. An Advisory Action and Notice of Non-Compliant Amendment was mailed on May 25, 2007 to which Applicants responded in timely manner on June 7, 2007.

V. Summary of Claimed Subject Matter

Claim 9 is the only independent claim in the application.

Independent claim 9. The claimed invention is directed to a tire having an antenna assembly affixed to an inward surface, the tire being formed by a process comprising the steps: forming within a rigid core (48) a core recess (66) complementarily configured to the antenna assembly (Specification page 2, para. 6 and page 5, para. 15, 16, FIGS. 3, 4);

positioning the antenna assembly (32) within the core recess (66), the antenna assembly having an inward peripheral boundary enclosed by the recess and an exposed outward peripheral boundary (Specification page 2, para. 6, and page 5, para. 16, FIGS. 3, 4);

building an uncured carcass (40) of the tire (12) around the rigid core (48) and over the outward antenna assembly boundary, an inner surface of the tire entrapping the antenna assembly within the core recess (66) (Specification page 2, para. 6, and page 6, para. 17, FIGS. 3, 4);

cross-bonding the antenna assembly outward boundary to the inner surface of the tire during a cure cycle (Specification page 2, para. 6 and page 6, para. 18, FIGS. 3,4);

removing the cured tire and antenna assembly from the rigid core, the inward antenna assembly boundary being unbonded to the tire and facing an inner cavity of the tire (Specification page 2, para. 6 and page 6, para. 18, FIGS. 3,4) .

Claims 10-13 depend from independent claim 9 and recite steps: sizing the antenna assembly outward boundary to protrude a distance beyond an outward surface of the rigid core while positioned within the core recess (claim 10); assembling the antenna assembly on the rigid core prior to building the carcass around the rigid core (claim 11); preassembling the antenna assembly prior to positioning the antenna assembly within the core recess (claim 12); and forming a socket within a portion of the core recess configured to receive a sensor housing component of the housing assembly (claim 13).

VI. Grounds of Rejection to be Reviewed on Appeal

A. The rejection of claims 9-13 under 35 U.S.C. §112 as failing to comply with the written description requirement.

B. The rejection of claims 9-13 under 35 U.S.C. §102(b) as being anticipated by Fritze (US 3,662,335).

VII. Argument

A. The Rejection of Claims 9-13 under 35 U.S.C. § 112 First Paragraph

Claims 9-13 stand rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. Claims 9-13 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant disagrees with the rejection and maintains claims 9-13 as amended are in full statutory compliance. There is no basis in the specification that the antenna must be claimed as “annular” for one skilled in the art to practice the invention claimed. One of ordinary skill in the art would clearly recognize that the configuration and shape of the antenna assembly and the socket within the core into which the antenna assembly is to be placed need not be any particular shape but, rather, only that the socket and antenna assembly received therein be

complementary. The specification clearly recites at page 5, para. 15 that the “recess 66 is configured and dimensioned to receive antenna assembly 10 therein as shown in FIGS. 3, 4”. No recitation that the recess 66 must be annular form is presented. Nor would one skilled in the art fail to understand that the recess 66 configuration and dimension is constructed to complement the configuration and dimension of the antenna assembly 10. Use of “configuration and dimension” in its ordinary meaning would convey to one skilled in the art that the inventors at the time of the application contemplated a dimensional and configuration correlation between the recess and the antenna assembly 10 and nothing more. There is no question that the specification and description teach forming within a rigid core a core recess “complementarily configured” as originally presented in claim 9-13. Moreover, as presented at page 5, para. 16 of the specification, “The recess 66 preferably extends in a circular path about the core 48, *however, a non-circular or irregular path may also be employed*” (emphasis added). Clearly the invention as recited in the specification conveys to one skilled in the art that the recess, and hence the antenna assembly 10, may take a non-circular (*i.e.*, non-annular) or irregular form. No new matter is therefore considered by amendment of claims 9-13 to recite an antenna assembly and recess that may have a non-circular or irregular form.

The Examiner’s position that one skilled in the art would not consider the use of alternative antenna configurations as within the scope of the invention given the above-summarized teachings from the specification and given the ordinary skill of such an artisan is untenable, incorrect, and reversible error.

B. The Rejection of Claims 9-13 under 35 U.S.C. §102(b)

Claims 9-13 stands rejected under 35 U.S.C. §102(b) as being anticipated by Fritze (US 3,662,335). This rejection is respectfully traversed for the following reasons.

The courts have held that under 35 U.S.C. § 102 a “claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Examiner has not disputed that Fritze '335 does not form a tire by the process claimed in claims 9-13.. Specifically, Fritze '335 is not formed by the creation of a core recess of complementary configuration to an antenna assembly within a rigid core. Nor does Fritze position an antenna assembly within a core recess so that an inward peripheral boundary of the assembly is enclosed by the recess and an outward peripheral boundary remains exposed. Nor does Fritze '335 build an uncured carcass of the tire around the rigid core and over the outward antenna assembly boundary, an inner surface of the tire entrapping the antenna assembly within the core recess. Fritze '335 further does not cross-bond the antenna assembly outward boundary to the inner surface of the tire during a cure cycle and does not remove the cured tire and antenna assembly from the rigid core, the inward antenna boundary being unbonded to the tire and facing an inner cavity of the tire.

The Examiner's rejection is based on the position that the structural features of the tire required by the claims are considered to be met by Fritze '335. Applicant disagrees.

In particular, as to the Fritze '335 tire, the Fritze tire does not meet the following structural features of the tire formed by the claimed steps:

a tire having an antenna assembly having an inward peripheral boundary and an exposed outward peripheral boundary;

a tire having an antenna assembly in which an outward boundary of the antenna assembly is cross-bonded to the inner surface of the tire; and

a tire having an antenna assembly in which an inward antenna assembly boundary is unbonded to the tire and faces an inner cavity of the tire.

Thus, Fritze '335 does not disclose each and every element of a tire formed by the claimed steps and accordingly fails to anticipate the claimed invention.

The Examiner has in the Office Action May 19, 2006, paragraph 10, stated that Fritze discloses "an annular antenna assembly vulcanized to the *inside* (emphasis added by Applicants) of the tire" and so it does. And, Fritze identifies as the antenna the conductors 20 which reside within the sidewall of the tire in each and every embodiment disclosed. Moreover, the structural limitations of claim 9 state that an antenna assembly boundary is *unbonded* to the tire while facing the tire cavity while another boundary is cross-bonded to the *inner surface* of the tire. In order to determine whether Fritze anticipates the claims, therefore, it is essential that the Fritz antenna 20:

1. Include an inner and outer boundary.
2. Include an outward boundary that is cross-bonded to *the inner surface* of the tire during a cure cycle.
3. Include an inner boundary that remains *unbonded to the tire* and *facing an inner cavity* of the tire after the antenna outward boundary is cross-bonded to the inner surface of the tire.

Applicants submit that the antenna 20 of Fritze '335 is within a tire sidewall and, as such, does not and cannot have an inner boundary that is unbonded to the tire and facing an inner cavity of the tire. Nor is the outward boundary of the Fritze assembly 20 (being within the tire as the Examiner notes) cross-bonded to an inner surface of a tire. The assembly 20 in Fritze, Applicants submit, is embedded within a lower wall of the tire and not affixed by cross-bonding to an inner surface a tire.

Fritze states in Column 3, lines 45-49: "The components constituting the coupling element or the oscillator-antenna unit in these figures are in the form of one or more copper strands 20 extending about the circumference of the wheel in proximity to the rim outer edge

and in parallelism to one another”. Thus, it is assembly 20 that constitutes the antenna assembly as defined by the reference itself and it is assembly 20 that must meet the structural limitations of the tire formed by the steps set forth in the pending and rejected claims.

The same antenna assembly 20 in Fritze is shown in FIGS. 2, 3, and 4 at different mounting locations. None of the locations, however, situate the assembly 20 such that an inner boundary of the assembly 20 is unbonded to the tire and faces an inner tire chamber. It is noted that the reference line to element 20 of Fritze in FIG. 2, on which the Examiner directly relies, extends through the inward surface of the tire, through the tire material surrounding the unit 20, to terminate on the embedded unit 20. Likewise, in FIG. 3 and 4 the reference line projects through the inner boundary of the rim to the embedded unit 20. The Examiner’s characterization of Fritze element 20 as meeting the claim limitations is, accordingly, a mischaracterization for the Fritze element 20 does not have an outward boundary *cross-bonded to the inner surface* of the tire during a cure cycle as required by claim 9. Nor does the Fritze element 20 have (and the Examiner has not identified) an inner boundary *unbonded to the tire and facing an inner cavity* of the tire

The structural elements in a tire formed by the process claimed are therefore not met by Fritze and the rejection under 35 U.S. C. 102 is erroneous and unfounded.

As Fritze fails to anticipate the invention as recited in claims 9 through 13, it is respectfully requested that this rejection be withdrawn.

In response to the Final Rejection dated February 9, 2007, Applicants attempted to amend claim 9 to make the identification of the inward boundary of the antenna assembly in claim 9, line 14 consistent with the lines 6 and 7 and to place the claim in better form for the subject appeal. The proposed amendment was refused. Reconsideration is requested.

Regarding the remarks presented by the Examiner in the Advisory Action dated May 25, 2007, claim 9 is clear that the process comprises the step of “positioning the antenna

assembly within the core recess”. Therefore, the antenna assembly of a tire has a portion that is not, and can never become, within a sidewall of the tire as antenna assembly 20 as is taught by Fritze. Strands 20, in Fritze, are within the tire sidewall. The strands 20 could not have been placed into a recess within a core around which a tire carcass is formed. The lead line from numeral 20 clearly extends through the tire material surrounding antenna 20 to the antenna 20 structure. It would be impossible to build the tire of Fritze by “positioning the antenna assembly 20 within a core recess”; “building an uncured carcass of the tire around the rigid core and over the antenna assembly boundary, an inner surface of the tire entrapping the antenna assembly within the core recess” as required by the independent claim 9.

Moreover, claim 9 requires a cross bonding of the antenna assembly outward boundary to the inner surface of the tire during a cure cycle. The outward boundary of the antenna assembly must therefore be adjacent to and in contact with an inner surface of the tire during the cure cycle. In Fritze, there is no outward surface of the antenna assembly 20 that is adjacent to and in contact with the inner surface of the tire during the cure cycle. To include the material of the sidewall surrounding the antenna 20 of Fritze as part of the antenna contradicts the literal definition in Fritze that it is the element 20 which constitutes the antenna assembly.

In the Advisory Action, the Examiner identifies an inside surface of the tire but that surface does not contact the antenna assembly 20. The Fritze teaching, Applicants maintain, is to embed the antenna assembly 20 within the tire sidewall, not cross bond the assembly against an inside tire surface during the tire cure cycle. The Fritze process of embedding an antenna coil within a tire sidewall is different from the claimed process and results in a tire structure that is likewise different from the tire produced by the invention process.

In summary, the Fritze tire and antenna assembly explicitly does not practice the claimed process as set forth in claim 9. The Examiner’s suggestion that the claims simply

require a tire with an antenna assembly vulcanized to the tire inside and protruding therefrom is simply incorrect. There must be, according to the claims, a surface-to-surface bonding between the antenna assembly and the tire inside surface and there must further be a resultant tire structure in which the antenna assembly, not the tire sidewall, protrudes into a tire cavity unbonded to the tire. Fritze shows no such surface-to-surface bonding between the antenna assembly 20 and the tire inside surface.

VIII. Conclusion

For the reasons stated above, Appellants respectfully urge the Board to reverse the rejections of claims 9-13.

Respectfully submitted,

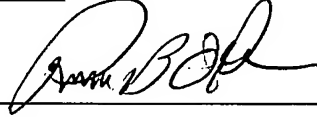
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IX. CLAIMS APPENDIX

1. A method for pre-cure application of an annular antenna assembly to a tire comprising the steps:

forming within a rigid core defining an interior surface of the tire a core recess complementarily configured to the annular antenna assembly;

positioning the annular antenna assembly within the core recess;

building an uncured carcass of the tire around the rigid core entrapping the annular antenna assembly within the core recess;

cross-bonding the annular antenna assembly to the inner surface of the tire during a cure cycle;

removing the cured tire and annular antenna assembly from the rigid core.

2. A method according to claim 1 further comprising the step of sizing the annular antenna assembly to protrude a distance beyond an outward surface of the rigid core while positioned within the core recess.

3. A method according to claim 1 further comprising the step of assembling the annular antenna assembly on the rigid core.

4. A method according to claim 1 further comprising the step of pre-assembling the annular antenna assembly prior to positioning the annular antenna assembly within the core recess.

5. A method according to claim 1 further comprising the step of forming a socket within a portion of the core recess configured to receive a sensor housing component of the antenna assembly.

6. In a mold for molding and vulcanizing a rubber tire of the type comprising a removable rigid core on which the tire is built, the improvement comprising:

a core recess formed within an outer surface region of the rigid core complementarily configured for receipt of an annular antenna assembly therein, the core recess having sides that at least partially enclose and protect the antenna assembly during a tire cure cycle.

7. A mold according to claim 6 wherein the core recess is dimensioned to facilitate a protrusion of the annular antenna assembly a distance beyond an outward surface of the rigid core while positioned within the core recess.

8. A mold according to claim 6 further comprising a socket within a portion of the core recess configured to receive a sensor housing component of the antenna assembly.

9. A tire having an antenna assembly affixed to an inward surface, the tire being formed by a process comprising the steps:

forming within a rigid core defining an interior surface of the tire a core recess complementarily configured to the antenna assembly;

positioning the antenna assembly within the core recess, the antenna assembly having an inward peripheral boundary enclosed by the recess and an exposed outward peripheral boundary;

building an uncured carcass of the tire around the rigid core and over the outward antenna assembly boundary, an inner surface of the tire entrapping the antenna assembly within the core recess;

cross-bonding the antenna assembly outward boundary to the inner surface of the tire during a cure cycle;

removing the cured tire and antenna assembly from the rigid core, the inward antenna assembly boundary being unbonded to the tire and facing an inner cavity of the tire.

10. A tire according to claim 9 further comprising the step of sizing the antenna assembly outward boundary to protrude a distance beyond an outward surface of the rigid core while positioned within the core recess.
11. A tire according to claim 9 further comprising the step of assembling the antenna assembly on the rigid core prior to building the uncured carcass of the tire around the rigid core.
12. A tire according to claim 9 further comprising the step of pre-assembling the antenna assembly prior to positioning the antenna assembly within the core recess.
13. A tire according to claim 9 further comprising the step of forming a socket within a portion of the core recess configured to receive a sensor housing component of the antenna assembly.

X. EVIDENCE APPENDIX

There is no evidence submitted in this Appeal.

XI. RELATED PROCEEDINGS APPENDIX

There are no related proceedings in this Appeal.